

REMARKS

This Amendment is responsive to the Final Office Action dated March 25, 2005.

Applicant has canceled claims 6 and 25, and amended claims 1, 8, 14-16, 21, 26, 33, 40, 46 and 47. Claims 1-5, 8-24 and 26-53 are pending upon entry of this Amendment.

Before addressing the individual claim rejections, Applicant provides the following summary of the Examiner's arguments, which can be best understood by reviewing the Advisory Action. In the Advisory Action, the Examiner argued: (1) relational databases are well known, (2) relational databases have tables of rows and columns, and (3) relational databases can be stored on either client devices or server devices.¹

Applicant agrees with all of these statements. Applicant has amended the claims to clarify certain features of Applicant's invention. Before addressing the particular claims, Applicant provides the following remarks.

- (1) Applicant's claims are directed to techniques for generating electronic reports from multidimensional data, and for accelerating the display of those reports on client devices. For example, as described in the present application, a virtual table is used by a client device to buffer multidimensional data received from a server. As clarified with respect to Applicant's claim 1, multidimensional data and a report model are sent from the server device to the client device and used to render subsequent web pages without needing to transmit additional multidimensional data for each subsequent web page. The virtual table on the client device is used to temporarily store all or substantially all of the multidimensional data necessary for the report, which may have multiple pages. However, only a subset of the temporarily stored multidimensional data may be used to render a given web page received from the server in relation to that report.
- (2) Furthermore, the server maintains state data that tracks a current viewing location within the virtual table, and the client device allows a user to scroll through the multidimensional data without requiring that additional multidimensional data be downloaded from the data cube. Thus, subsequent web pages can be sent from the client to the server without requiring that additional multidimensional data also be sent to render those web pages. Because the page layout calculations are performed by the

¹ Advisory Action, continuation sheet.

server based on the known current viewing location at the client, and the multidimensional data is buffered at the client device within the virtual table, the client device may render and display the page more quickly than other systems that perform similar calculations at the client.

- (3) Many of Applicant's claims require formatting a web page at a server based on a viewable window into multidimensional data previously communicated from the server and buffered on a client device. Nothing in the references teach or suggest a server that formats a web page to display data that is already buffered at a client device. In the Advisory Action, the Examiner argues that King describes a server that generates a web page having a scrollbar. However, this conventional approach requires generating the web page itself to either include all of the data or, if the data is large, requires the client device to issue subsequent requests to retrieve additional data from the server as the user scrolls. Nothing in the references teaches or suggests formatting a web page at a server based on a viewable window into multidimensional data previously communicated from the server and already buffered on a client device. Moreover, none of the references teach or suggest issuing communications from the client to the server to record the scroll movements through that client-side multidimensional data at the server.

Applicants now address the specific requirements of each claim and the deficiencies of the references.

Claim Rejection Under 35 U.S.C. § 102

In the Final Office Action, the Examiner maintained the rejection of claims 14, 17-18, 40, 44-45 under 35 U.S.C. 102(a) as being anticipated by Malloy et al. (US. 6,122,636). Applicant respectfully traverses the rejection to the extent applicable to Applicant's amended claims. Malloy et al. fails to disclose each and every feature of the claimed invention, as required by 35 U.S.C. 102(a), and provides no teaching that would have suggested the desirability of modification to include such features.

With respect to claim 14, Malloy fails to teach or suggest a client device that includes a virtual table to store multidimensional data received from a server, wherein the server includes state data defining a current viewing location within the virtual table by the client device.

Applicant has amended claim 14 to require that the server format a web page based on a current viewing location into multidimensional data previously sent to a client device. Malloy fails to teach or suggest this feature.

Applicant has also amended claim 14 to require that the client device update the web page and then send a communication from the client device to the server to record a new current viewing location within the virtual table on the client device in response to the scroll input. Malloy fails to teach or suggest this feature.

Moreover, Malloy fails to even teach or suggest a client device that includes a virtual table to store multidimensional data received from a server, wherein the server includes state data defining a current viewing location within the virtual table stored on the client device. In response to this point, the Examiner states that Malloy teaches that a relational database may be stored on a client or a server. Applicant does not dispute this point. The Examiner overlooks the fact that even if a relational database of Malloy were stored on a client device, the web server would not maintain a current viewing location of the client into that data already stored on a client. Indeed, if the user scrolled a conventional web page, the server would not even be aware as to what portion of the locally-stored data the client was viewing unless the client requested additional data. The server certainly could not format web pages based on how the client device is currently viewing locally stored data on the client device. That feature is clearly not taught nor suggested by any of the references.

Applicant has amended claim 40 to require sending multidimensional data from the server to the client device for buffering on the client device and, in response to input from a user, sending a communication from the client device to the server to record a current viewing location within the multidimensional data buffered on the client device. Malloy fails to teach or suggest recording a server that records a current viewing location of multidimensional data already sent to and buffered at a client device.

Malloy et al. (US 6,122,636) fails to disclose each and every limitation set forth in claims 14, 17-18, 40 and 44-45. For at least these reasons, the Examiner has failed to establish a prima facie case for anticipation of Applicant's amended claims 14, 17-18, 40 and 44-45 under 35 U.S.C. 102(b). Withdrawal of this rejection is requested.

Claim Rejection Under 35 U.S.C. § 103

In the Office Action, the Examiner rejected claims 1-13, 15, 19-20 and 43 under 35 U.S.C. 103(a) as being unpatentable over Malloy et al. (US 6,122,636) in view of King et al. (US 6,161,114). The Examiner further rejected claims 16 and 46-52 under 35 U.S.C. 103(a) as being unpatentable over Malloy in view of Ramaswamy et al. (US 6,510,164), rejected claims 21- 39 and 53 over Malloy et al. in view of King et al. and further in view of Earle (US 5,359,724), and rejected claims 41-42 over Malloy in view of Marmor (US 6,601,108).

Applicant respectfully traverses the rejections to the extent such rejections may be considered applicable to the claims as amended. The applied references fail to disclose or suggest the inventions defined by Applicant's claims, and provide no teaching that would have suggested the desirability of modification to arrive at the claimed invention.

As discussed above, Malloy describes the structure of the relational database as maintained by a database server. As correctly recognized by the Examiner, Malloy fails to teach or suggest formatting a web page at the server based on the current viewing location within the data table as defined by the state data. To overcome this deficiency, the Examiner cites King, which describes generating a web page. However, even when combined, Malloy and King fail to suggest many of the elements required by Applicant's claims.

With respect to independent claim 1, for example, the applied references lack any teaching that would have suggested that a server store state data that records a current viewing location within multidimensional data previously sent from the server to a client device.

Moreover, the references fail to teach updating the web page at the client device and then sending a communication from the client device to the server to update the state table to record a new current viewing location within the virtual table on the client device in response to a scroll input at the client device.

The references also fail to teach or suggest formatting a web page at the server based on the current viewing location within the data table at the client device as defined by the state data, and communicating the web page to the client device for displaying to a user a portion of the data table stored on the client device, as further required by claim 1.

With respect to claim 2, neither Malloy nor King suggest formatting a web page at the server based on server-side state data that includes a starting row and a starting column within data previously sent to a client device, as required by claim 2.

Similarly, with respect to claim 3, neither Malloy nor King suggest formatting a web page at the server based on server-side state data that a font size, a column width, a row width, a column height, a row height, one or more column labels and one or more row labels, as required by claim 3.

Neither Malloy nor King suggest formatting a web page at the server by calculating widths and heights for rows and columns of the web page based on data of the data table stored on the client device, and generating code to format the web page according to the calculated widths and heights, as required by claim 4. Again, Malloy merely discloses a relational database structured to emulate a multi-dimensional database, and the HTML formatting techniques described by King makes no mention of formatting a web page at a server to display multidimensional data that is already stored on the client device.

For reasons set forth above, neither Malloy nor King teach or suggest receive a communication from the client device directing the server to update the state table to record a new current viewing location within the data table on the client device when the user scrolls the web page, as required by claim 8. Claim 9-13 are patentable over Malloy and King for at least the reasons set forth above.

With respect to claim 19, neither Malloy nor King teach or suggest a page generation module that calculates widths and heights for rows and columns displayed to the user based on data of the data table stored within the client device. Similarly, neither Malloy nor King teach or suggest a page generation module that embeds scroll bars in the web page based on an amount of data within the data table stored by the client device.

With respect to independent claim 46, a server having a page generation module that records a current viewable window into a portion of the multidimensional data already stored at the client side and then formats a web page for delivery to the client based on that current viewable window.

Applicant's has amended independent claim 21 and independent claim 33 to further clarify the claimed invention. For example, Applicant has amended claim 21 to recite in

response to a scroll request from a user, updating the pointers to define a new viewable window within the multidimensional data stored at the client device without requesting additional multidimensional data from the server. Claim 21 further requires updating the web page to display the new viewable window of the multidimensional data; and sending a communication from the client device to record the new viewable window in response to the scroll input. None of the references teach or suggest these features.

With respect to claim 33, the references fail to teach or suggest instructions to receive scroll input from the user, and in response to the scroll input, display a new web page at the client device without requesting additional data from the server and send a communication from the client device directing the server to record a new current viewing location within the data table on the client device.

For at least these reasons, the Examiner has failed to establish a prima facie case for non-patentability of Applicant's claims 1-5, 8-13, 15, 19-39, 41-43 and 46-52 under 35 U.S.C. 103(a). Withdrawal of this rejection is requested.

CONCLUSION

All claims in this application are in condition for allowance. Applicant respectfully requests reconsideration and prompt allowance of all pending claims. Please charge any additional fees or credit any overpayment to deposit account number 50-1778. The Examiner is invited to telephone the below-signed attorney to discuss this application.

Date:

By:

September 23, 2005
SHUMAKER & SIEFFERT, P.A.
8425 Seasons Parkway, Suite 105
St. Paul, Minnesota 55125
Telephone: 651.735.1100
Facsimile: 651.735.1102

Kent J. Sieffert
Name: Kent J. Sieffert
Reg. No.: 41,312